Customer Questionnaire

PART A – GENERAL INFORMATION

Project full name: Acronym or short title:

Person Submitting Questionnaire: Date:

Title: e-mail address: Telephone:

Project purpose (25 words or less):

Sponsoring organization type: NASA Center Sponsoring org. name:

Current project phase: ☐ Formulation ☐ Implementation ☐ Operations ☐ Extended operations

Expected mission duration: Potential extended operations:

Are you planning on utilizing GSFC Flight Dynamics Facility (FDF) services? ☐ Yes ☐ No ☐ Not sure

Where is the control center?

Where will the science data be delivered (facility and location)?

Are you planning on utilizing NASA Integrated Services Network (NISN) Internet Protocol Operational Network (IONet) services? ☐ Yes ☐ No ☐ Not sure

Will you require mission voice services? ☐ Yes ☐ No ☐ Not sure

What are your expectations for Space Network (SN) and/or Near Earth Network (NEN) services?
Do you require SN or NEN services during launch and early orbit when the S/C may still be connected to the launch vehicle? ☐ Yes ☐ No ☐ Not sure

Do you require SN or NEN services during powered flight? ☐ Yes ☐ No ☐ Not sure

Do you require SN or NEN services immediately following separation when the spacecraft is not at its nominal attitude or not under its final attitude control (i.e tumbling/rotating)? ☐ Yes ☐ No ☐ Not sure

Are there other assets providing services? ☐ Yes ☐ No ☐ Not sure

If yes, which assets?

Points of Contact	**Name**	**Phone**	**Email**
Project Manager			
Project networks services			
Financial point-of-contact			
Radio frequency engineer			

Types of SN and NEN services requested, if known (check all that apply):

Service	SN	NEN	Not sure
Telemetry	☐	☐	☐
Tracking*	☐	☐	☐
Science Data	☐	☐	☐
Command	☐	☐	☐
Ranging	☐	☐	☐

*Do you need 1-way or 2-way Doppler during launch & early orbit and/or during on-orbit ops?
☐ Yes ☐ No ☐ Not sure

**Are there specific mark events that require mandatory coverage?
☐ Yes ☐ No ☐ Not sure

Mark events:

What are your post launch checkout phase definitions?

Activities for which services are requested, if known (check all that apply):

Activity	SN	NEN	Not sure
Testing	☐	☐	☐
Launch only	☐	☐	☐
Launch and early orbit**	☐	☐	☐
Please define sub-phases			
Back-up contingency	☐	☐	☐
On-orbit special events	☐	☐	☐
Please define sub-phases			
Nominal operations	☐	☐	☐
End-of-life (EOL)	☐	☐	☐

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Frequency

Frequency band to be used: ☐ Ku ☐ Ka ☐ S ☐ X ☐ Other

Will simultaneous receipt of two bands be required? ☐ Yes ☐ No

What modulation will be used with each band?

For SN service : ☐ SA ☐ MA ☐ SMA ☐ DAS

Data Delivery

Command (R/T forward link) data rates:

Telemetry (R/T return link) data rates:

Science data volume per contact (Mbytes)

Latency (science data delivery) requirements:

Launch-Related Information

Launch site location: Launch vehicle:

Launch date: Launch trajectory:

Launch window: Recycle time for launch scrubs:

Orbit Information

Apogee and perigee, or semi-major axis and eccentricity:

Inclination:

Argument of right ascension:

Nodal crossing type (ascending or descending):

Local time of nodal crossing:

Will there be any transfer orbits?

Repeat cycle, if appropriate:

Spacecraft Services Information

	Space Network (SN)			Near Earth Network (NEN)		
	Min	Avg	Max	Min	Avg	Max
Desired number of contacts per day:						
Average length of each contact:						
Are there required min./max. separation times between contacts for telemetry and command?						

Other constraints:

Other special considerations:

PART B – ADDITIONAL INFORMATION

What organization is obtaining spectrum and frequency authorizations?

If applicable, provide NTIA Spectrum Certification number and Radio Frequency Authorization (RFA) number.

_____

What organization will do acquisition data (ephemeris) generation?

Are there applicable CCSDS standards? ☐ Yes ☐ No Which version?

COP-1? ☐ Yes ☐ No If X-band, what VCIDs will be utilized?

Do you plan to use the Satellite Laser Ranging Network? ☐ Yes ☐ No ☐ Not sure

Will your spacecraft include retroreflectors for ground-to-satellite laser ranging? ☐ Yes ☐ No ☐ Not sure

Has NASA determined if this mission is a reimbursable? ☐ Yes ☐ No

If yes, provide NASA Point of Contact:

Any additional information or special requests you would like to add?

PART C – RADIO FREQUENCY (RF) INFORMATION FOR LINK ANALYSES

Uplink/Forward Link Information (for each link)

Service Description:

Frequency:

Polarization:

Data Modulation Information:

Description: (Note: If there are multiple channels, please provide the details for each channel; for example, if the signal includes both a channel on the baseband carrier and includes a channel on the subcarrier which modulates the carrier, please describe each channel individually. If the signal is a single data source and separated into channels, please describe (or provide a block diagram) how this signal is separated, including single data rate and separate channel rates and any requirements to recombine the channels into a single data stream.)

Modulation Type: Modulation Index (if not PSK):

Sub-carrier Modulation Frequency (if applicable):

Data rate prior to any coding (should include CCSDS overhead):

Data format: Symbol rate prior to any convolutional coding:

Symbol rate after all coding: Symbol format:

PN spreading rate per SNUG constraints (if applicable):

Required BER: Receiver implementation loss:

Required acquisition performance:

Other links, modes, playbacks?

NEN Ranging Modulation Information (if applicable):

Description: Highest tone/code frequency:

Highest tone/code modulation index: Lower tone/code modulation index (if applicable):

Receive Vehicle RF Information:

Description: Receive antenna gain Information (include gain characteristics, polarization, and beam-width and axial ratio associated with gain):

Passive loss from antenna to receiver: Noise figure of receiver and/or system noise temperature at receiver:

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PART C – RF INFORMATION, CONTINUED

Downlink/Return Link Information (for each link):

Service description:

Frequency (include description on coherent and non-coherent operations as applicable):

Data Modulation Information:

Description: (Note: If there are multiple channels, please provide the details for each channel; for example, if the signal includes both a channel on the baseband carrier and includes a channel on the subcarrier which modulates the carrier, please describe each channel individually. If the signal is a single data source and separated into channels, please describe (or provide a block diagram) how this signal is separated, including single data rate and separate channel rates and any requirements to recombine the channels into a single data stream.)

Modulation type:

Modulation index (if not PSK):

Subcarrier modulation frequency (if applicable):

Data rate prior to any coding (should include CCSDS overhead):

Data format:

Symbol rate prior to any convolutional coding:

Type of coding :

Symbol rate after all coding:

Symbol format:

PN spreading rate (if applicable):

Required BER:

NEN Ranging modulation information (if applicable):

Description:

Turnaround Modulation Index for a single uplink tone:

Accuracy Requirements:

Transmit vehicle RF information:

Description:

Transmitter power:

Passive loss from transmitter to antenna input:

Transmit antenna gain Information (include gain characteristics and beamwidth and axial ratio associated with gain & polarization):

Tracking Information (excludes ranging, which was discussed earlier):

Description:

Doppler Requirements: ☐ 1-way ☐ 2-way ☐ Differenced One-Way

Doppler Accuracy Required:

Point-of-Contact for RF Link Analyses Questions (name, phone, email):

PART D – NEN GATEWAY INFORMATION

Data Volume per Pass
AOS Frame Size CRC? ☐ Yes ☐ No
VC Separation? ☐ Yes ☐ No If Yes, VC List:
Latency Requirement: Data File naming convention:
Delivery Protocol (SFTP, CFDP, SCP):
SFTP End Point Retrieval? ☐ Yes ☐ No If No, Self Service retrieval? ☐ Yes ☐ No

PART E – SN GATEWAY INFORMATION

SN Gateway Encapsulation Format:
Space Link Extension ☐ **LEO-T** ☐ **IPDU** ☐

Encapsulation Format General Information:

Frame Sync Enabled? ☐ Yes ☐ No

Frame Sync Pattern xxxxxxxx **Frame Length** ####

Location ☐ First ☐ Last **Size in Bits (default is 32)** ##

Slip Size ## **Search Frames** #

Lock Frames # **Check Frames #**

Automatic Polarity Control Enabled? ☐ Yes ☐ No

NOTE: A detailed questionnaire for selected encapsulation format will be sent to project.